



IPSC (Air Quality)
48860.0002

INTERMOUNTAIN POWER SERVICE CORPORATION

April 29, 2005

Richard Sprott, Director
Division of Air Quality
Department of Environmental Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820

Attention: Jesse McDonald, Compliance Section

Dear Director Sprott:

IPSC PSD Compliance Report

The Intermountain Power Service Corporation (IPSC) is herein providing information to show compliance with federally enforceable limits set as conditions within our applicable Title V operating permits and approval orders (AO). This report is required by the following conditions that were effective during the reporting period:

Title V Operating Permit #2700010002 (8/8/2003), Conditions II.B.2.f & II.B.2.g

AO DAQE-AN0327009-04, Condition 25

These conditions require IPSC to show that there were no significant emission increases of pollutants regulated under Prevention of Significant Deterioration (PSD) rules that were attributable to modifications performed by IPSC. The specific PSD requirement implemented by these permits is promulgated as the "WEPCO" rule (40CFR52.21), which requires comparisons of emissions before and after source modifications.

Compliance Provisions

In order to avoid PSD major modification permitting, a modification can not result in significant emission increases. Under the WEPCO rule, modifications can be permitted as minor if the permittee can represent projections that, all other things equal, post modification actual emissions are predicted to be less than significant increases from the actual emissions prior to the proposed change. IPSC followed this requirement when obtaining the approval to make the permitted modifications.

To show compliance with the WEPCO rule after the modifications have occurred, IPSC must compare two year actual emissions prior to the modification to actual emissions after the modification. If a significant increase in any PSD pollutant emission attributable to the

modification is shown to have occurred, IPSC must then undergo full a PSD major modification process for that pollutant.

WEPCO allows the source to discount those emission increases not attributable to the modification. PSD provisions prevent using decreases when no netting is performed in permitting, as was the case in this particular permitting action. The permitted modifications affecting emissions at IGS are tied to increased heat input for higher generating capacity. Any emission increases not associated with the change can be excluded from the pre- and post-change emission comparison. These excluded emissions can be from non-modification related parameters such as demand growth, changes in fuel quality, operational variability in overall pollution control efficiency, operating hours, or those emissions that could have been otherwise accommodated during the baseline period. None of the modifications were non-routine replacements to accommodate forced outages. Accordingly, IPSC is not prevented to use changes in hours of operation to exclude emissions from either unit at IGS. (See the EPA policy determination letter to Henry V Nickel on Detroit Edison, 5/23/00.)

WEPCO Compliance Analysis

Presented in the table below are the pollutant-by-pollutant compliance determinations as required by permit and the WEPCO rule. The calculations used take into consideration the ability to adjust and discount actual emissions by subtracting emission increases from operational differences not attributable to the modifications. These include adjustments for coal quality, control technology variability, hours of operation, or those emissions that could have been otherwise accommodated during the baseline period. For purposes of the permitting modifications tied to the IGS Dense Pack Project, the positive reducing effects from the use of over fire air must be added back onto the actual compliance period emissions. Since NOx is the only pollutant beneficially affected by over-fire air (OFA), the adjustments for OFA apply only to it. This table clearly shows that the WEPCO test has been met for all PSD pollutants at IGS.

TABLE 1 - WEPCO Emission Test - IGS

<u>Pollutant</u>	<u>Baseline Emissions</u> <u>(3/1/2000-2/28/2002)</u>	<u>Post change Emissions</u> <u>(4/2004-3/2005)</u>	<u>Difference</u> <u>increase / (decrease)</u>	<u>PSD Significance</u>
Nitrogen Oxides (w/OFA)	26,537	22,440	(4,097)	40
Nitrogen Oxides (w/o OFA)	26,537	24,718	(1,818)	40
Sulfur Dioxide	3,856	3,453	(403)	40
PM (Stack)	282	235	(47)	25
PM10 (Stack)	260	217	(43)	15
Ozone (VOCs)	12.0	13.5	1.4	40
Lead	0.08	0.07	(0.02)	0.6
Beryllium	0.00087	0.00075	(0.00012)	0.0004
Mercury	0.080	0.088	0.008	0.1

Flourides	10.6	11.8	1.2	3
Sulfuric Acid	8.1	8.8	0.7	7
Other sulfur compounds	63.5	68.3	4.8	10

NOTE: Values are in tons, and have been adjusted to disallow OFA benefits and to exclude emissions not attributable to the modifications. These represent those PSD pollutants reasonably expected to be emitted by IGS. Other sulfur compounds include total reduced sulfur and reduced sulfur compounds (TRS/RSC).

Fuel Quality and Control Variability

Variability in coal characteristics have an ultimate impact on emissions. Fuel parameters such as sulfur, nitrogen, volatiles, ash content, and trace metal concentrations influence the rate and form of the respective emitted counterparts. The loading also has an impact on the performance of applicable pollution control devices. For instance, higher loading of inlet sulfur compounds to the wet limestone scrubbers cause a concomitant decrease in overall efficiency when operating at capacity. IPSC has developed from baseline data the relationship of how changes in fuel quality affects emissions, particularly for NOx and SO2.

The way IPSC is calculating excluded emissions is based upon the actual operating data from the baseline period. IPSC has developed curve relationships between coal quality and control device response and changes in actual emissions. In practice, IPSC back calculates, based on this relationship, what the emissions for a given pollutant would have been had that particular fuel been used during the baseline period. Operating parameters from the baseline period, such as heat input, are used to make this calculation to ensure it is distinct from emissions that could be attributable to the modification. The difference from what could have been accommodated during the baseline period if this fuel was used and the actual baseline emission rate are those emissions not related to the change, and are therefore excluded, and thus deductible from any emission increase.

Hours of Operation

Nothing in either the Dense Pack Project or the OFA addition affected the forced outage rate for either IGS Units 1 or 2. IPSC has no history of forced outages due to any modifications made in either permitted action. Thus, variability in year to year operating hours is utilized to compare directly that no significant emissions increase from the modifications occurred. As WEPCO dictates, even though the ultimate test is in tons per year comparisons, emissions are reduced to lbs per hour rates, and then calculated back to tons per year using equal hours of operation. This provides a direct measurement indicating any attributable emission increases.

Discounted OFA Control

For purposes of showing WEPCO compliance for the Dense Pack Project, IPSC must discount the beneficial NOx control aspects of the overfire air system. That is, emission decreases provided by OFA must be added back to the actual emissions to show that the Dense Pack Project itself did not cause as significant emissions increase of any pollutant. IPSC has substantial operational data to predict the effect of OFA at modified capacities.

WEPCO Methodology

To show consistency in year to year reporting, IPSC is providing an overview of formulae, bases for calculations, and sources of data in the attached spreadsheets. Outlined in them are descriptions of those components used for calculating WEPCO compliance on a plant wide basis as well as unit by unit..

Conclusion

IPSC has shown that no significant increase has occurred for any pollutant as a result of modifications at IGS. This completes the report for showing compliance with PSD determinations for the IGS Dense Pack modifications. All supporting documentation upon which this compliance report is based is available for review at the IGS site as required by rule and permit.

If you have any questions or clarifications, please contact Mr. Dennis Killian, Superintendent of technical Services and (435) 864-4414, or dennis-k@ipsc.com.

In as much as this notice of intent may affect our Title V Operating Permit, I hereby certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Sincerely,



George W. Cross
President & Chief Operations Officer, and Title V Responsible Official

BP/RJC/co

Enclosure: Computational Spreadsheets

cc: Blaine Ipson, IPSC
James Holtkamp, Holland & Hart
Bruce Harvey, LADWP

IP11_002450

**Intermountain Generating Station
WEPCO Computational Analysis**

For the reporting period April 2004 - March 2005

WEPCO COMPLIANCE SUMMARY

(12 month rolling total emission)

For the Period ending:

March-2005

<u>Pollutant</u>	<u>WEPCO Trigger</u>	UNIT ONE		
		Adj. Baseline	Adj. Emissions	WEPCO Met? (Y/N)
(PSD)	(tons)			
NOx (w/OFA)	40	13341	11880	Y
NOx (w/o OFA -p)	40	13341	12468	Y
SOx	40	1860	1523	Y
PM _(stack)	25	176	119	Y
PM _{10 (Stack)}	15	162	110	Y
VOC _(ozone)	40	5.9	6.6	Y
Lead	0.6	0.05	0.03	Y
Beryllium	0.0004	0.00056	0.00033	Y
Mercury	0.1	0.039	0.043	Y
Flourides	3	5.2	5.8	Y
Sulfuric Acid	7	4.0	4.3	Y
TRS/RSC	10	31.2	33.6	Y

UNIT TWO		
Adj. Baseline	Adj. Emissions	WEPCO Met? (Y/N)
13196	10560	Y
13196	12250	Y
1996	1930	Y
106	116	Y
98	107	Y
6.1	6.8	Y
0.03	0.04	Y
0.00031	0.00042	Y
0.041	0.045	Y
5.4	6.0	Y
4.1	4.5	Y
32.3	34.7	Y

IPP Production Data Actual Emissions

Unit 1																												
Month	Coal Throughput (tons)	Fuel Oil Throughput (gallons)	SS&M Gage Excess Emissions (lbs)	SS&M PM Emissions (lb)	SS&M PM10 Emissions (lb)	Operating Hours	Heat Input (coal) (Btu)	Heat Input (oil) (Btu)	Inlet Sulfur (lb/ton)	Inlet SO2 (lb/hr)	Outlet SO2 (lb/hr)	NOx Rate (lb/hr)	PM Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	BE Emission Factor (coal)	Lead Emission Factor (coal)	Lead tons (coal)	Lead tons (oil)	Mercury tons (coal)	Mercury tons (oil)	Fluorides tons (coal)	Sulfuric Acid (lb)	Sulfuric Acid (oil)	TSS/RSC tons	Ozone (VOCs) tons (coal)	Ozone (VOCs) tons (oil)	Ozone (VOCs) tons (oil)	Ozone (VOCs) tons (oil)
Apr-04	253,102	15,308	0	0.0	0.0	7200	5,95E+12	2,13E+09	0.84	246.7	155.4	0.371	1104.9	0.0040	11.9	0.0122	0.0000363	0.0000001	0.0000001	0.0000001	0.50	0.35	0.0004	2.98	0.54	0.02	0.0015	0.00003
May-04	257,525	9817	0	0.0	0.0	7440	6,16E+12	1,36E+09	0.82	251.2	121.6	0.342	1052.9	0.0040	12.3	0.0121	0.0000373	0.0000000	0.0000000	0.0000000	0.51	0.37	0.0002	3.08	0.55	0.03	0.0010	0.00002
Jun-04	251,196	726	0	0.0	0.0	7200	6,03E+12	1,00E+09	0.77	232.19	87.6	0.334	1007.1	0.0040	12.1	0.0126	0.0000379	0.0000000	0.0000000	0.0000000	0.49	0.33	0.0000	3.02	0.54	0.02	0.0010	0.00000
Jul-04	265,729	9633	0	0.0	0.0	7440	6,25E+12	1,33E+09	0.81	2519.3	96.8	0.339	1059.6	0.0040	12.5	0.0120	0.0000375	0.0000001	0.0000001	0.0000001	0.52	0.36	0.0003	3.13	0.57	0.03	0.0010	0.00002
Aug-04	264,116	23983	2100	0.6	0.4	743.8	6,15E+12	3,27E+09	1.00	3076.7	141.9	0.356	1095.3	0.0040	12.3	0.0117	0.0000359	0.0000002	0.0000002	0.0000000	0.52	0.39	0.0006	3.08	0.57	0.03	0.0024	0.00005
Sep-04	260,376	17082	900	0.3	0.2	719.5	5,98E+12	2,36E+09	0.96	2871.7	159.7	0.350	1076.9	0.0040	12.0	0.0107	0.0000321	0.0000002	0.0000002	0.0000000	0.51	0.41	0.0004	2.99	0.56	0.02	0.0017	0.00004
Oct-04	273,698	10155	0	0.0	0.0	744.0	6,20E+12	1,40E+09	1.05	3257.4	218.2	0.374	1160.2	0.0030	9.3	0.0072	0.0000224	0.0000001	0.0000001	0.0000000	0.54	0.47	0.0002	3.10	0.59	0.03	0.0010	0.00002
Nov-04	272,742	15067	1100	0.3	0.2	743.8	5,94E+12	2,07E+09	0.92	2731.3	172.1	0.364	1081.8	0.0030	8.9	0.0072	0.0000214	0.0000001	0.0000001	0.0000000	0.54	0.38	0.0003	2.97	0.59	0.02	0.0015	0.00003
Dec-04	289,022	18945	0	0.0	0.0	744.0	6,22E+12	2,78E+09	0.91	2819.8	188.8	0.367	1141.0	0.0030	9.3	0.0075	0.0000225	0.0000002	0.0000002	0.0000000	0.57	0.43	0.0007	3.11	0.62	0.03	0.0020	0.00003
Jan-05	275,697	18099	0	0.0	0.0	744.0	6,04E+12	2,30E+09	1.02	3083.1	228.2	0.370	1118.4	0.0030	9.1	0.0075	0.0000225	0.0000002	0.0000002	0.0000000	0.54	0.39	0.0004	3.02	0.59	0.02	0.0018	0.00004
Feb-05	246,676	14789	0	0.0	0.0	672.0	5,52E+12	1,97E+09	1.02	2815.5	206.8	0.379	1046.2	0.0030	8.3	0.0077	0.0000213	0.0000001	0.0000001	0.0000000	0.49	0.33	0.0003	2.76	0.53	0.02	0.0014	0.00003
Mar-05	35,785	3797	300	0.1	0.1	98.8	7,93E+11	5,29E+08	0.96	390.0	24.9	0.372	147.6	0.0030	1.2	0.0079	0.0000031	0.0000000	0.0000000	0.0000000	0.07	0.05	0.0001	0.40	0.08	0.00	0.0004	0.00001

Unit 2																														
Month	Coal Throughput (tons)	Fuel Oil Throughput (gallons)	SS&M Gage Excess Emissions (lbs)	SS&M PM Emissions (lb)	SS&M PM10 Emissions (lb)	Operating Hours	Heat Input (coal) (Btu)	Heat Input (oil) (Btu)	Inlet Sulfur (lb/ton)	Inlet Sulfur (lb/ton)	Outlet SO2 (tons)	NOx Rate (lb/hr)	NOx tons	PM Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	BE Emission Factor (coal)	Lead Emission Factor (coal)	Lead tons (coal)	Lead tons (oil)	Mercury tons (coal)	Mercury tons (oil)	Fluorides (tons)	Sulfuric Acid tons (coal)	Sulfuric Acid tons (oil)	TSS/RSC tons	Ozone (NOx) (lb/ton coal)	Ozone (VOCs) (lb/ton coal)	Ozone (VOCs) (lb/ton oil)	Ozone (VOCs) (lb/ton oil)	
Apr-04	196,657	43,971	2300	0.7	0.5	592.5	4,63E+12	6,13E+09	0.82	189.9	129.7	0.303	701.8	0.0032	12.0	0.0163	0.0000376	0.0000004	0.0000000	0.0000000	0.50	0.39	0.0012	2.32	0.42	0.02	0.0044	0.00010	0.00010	0.00010
May-04	252,046	24,801	1700	0.5	0.4	733.3	6,02E+12	3,46E+09	0.83	248.7	140.8	0.312	940.4	0.0032	14.4	0.0162	0.0000467	0.0000002	0.0000000	0.0000000	0.50	0.36	0.0006	3.01	0.54	0.02	0.0025	0.00005	0.00005	0.00005
Jun-04	251,857	1,653	0	0.0	0.0	7200	6,05E+12	2,28E+08	0.77	232.80	91.5	0.324	976.6	0.0032	15.7	0.0162	0.0000507	0.0000000	0.0000000	0.0000000	0.50	0.33	0.0000	3.02	0.54	0.02	0.0016	0.00003	0.00003	0.00003
Jul-04	267,244	16,291	0	0.0	0.0	7440	6,29E+12	2,24E+09	0.81	253.40	142.4	0.334	1050.1	0.0032	16.3	0.0160	0.0000503	0.0000002	0.0000000	0.0000000	0.53	0.37	0.0005	3.14	0.57	0.03	0.0016	0.00003	0.00003	0.00003
Aug-04	269,351	9,507	0	0.0	0.0	744.0	6,27E+12	1,30E+09	0.98	3080.2	186	0.357	1119.8	0.0032	15.0	0.0156	0.0000488	0.0000001	0.0000001	0.0000000	0.53	0.40	0.0002	3.11	0.56	0.02	0.0010	0.00002	0.00002	0.00002
Sep-04	261,585	11394	0	0.0	0.0	7200	6,01E+12	1,57E+09	0.95	2894.6	184.8	0.367	1102.8	0.0032	14.4	0.0143	0.0000491	0.0000001	0.0000001	0.0000000	0.54	0.41	0.0002	3.00	0.56	0.03	0.0011	0.00002	0.00002	0.00002
Oct-04	274,193	6435	0	0.0	0.0	744.0	6,21E+12	8,86E+08	1.04	3231.9	223.6	0.340	1056.6	0.0033	9.8	0.0080	0.0000249	0.0000001	0.0000001	0.0000000	0.54	0.38	0.0005	2.98	0.59	0.02	0.0011	0.00002	0.00002	0.00002
Nov-04	273,254	28009	0	0.0	0.0	7200	5,95E+12	3,58E+09	0.94	2784.8	170.3	0.332	988.8	0.0033	9.8	0.0080	0.0000238	0.0000003	0.0000000	0.0000000	0.54	0.38	0.0005	2.98	0.59	0.02	0.0026	0.00006	0.00006	0.00006
Dec-04	287,445	11345	0	0.0	0.0	744.0	6,18E+12	1,58E+09	0.92	2850.3	195.6	0.323	988.5	0.0033	10.2	0.0081	0.0000249	0.0000001	0.0000001	0.0000000	0.57	0.39	0.0004	3.09	0.62	0.03	0.0011	0.00002	0.00002	0.00002
Jan-05	264,504	14776	3000	0.9	0.9	7200	5,80E+12	2,05E+09	1.01	2928.7	210.8	0.323	936.6	0.0033	8.8	0.0083	0.0000240	0.0000001	0.0000001	0.0000000	0.52	0.42	0.0003	2.90	0.57	0.02	0.0015	0.00003	0.00003	0.00003
Feb-05	181,591	29911	5100	1.5	1.1	509.3	4,06E+12	4,15E+09	1.06	2165.4	185.7	0.314	636.5	0.0033	6.2	0.0086	0.0000174	0.0000003	0.0000000	0.0000000	0.40	0.29	0.0006	2.03	0.39	0.02	0.0030	0.00006	0.00006	0.00006
Mar-05	264,206	24593	0	0.0	0.0	744.0	5,85E+12	3,42E+09	0.91	2670.9	169.5	0.297	869.8	0.0033	9.7	0.0088	0.0000256	0.0000002	0.0000000	0.0000000	0.52	0.40	0.0006	2.93	0.57	0.02	0.0026	0.00006	0.00006	0.00006

Fuel Quality Data						
	Heating Value (Btu/lb)	Fuel Oil	Ash	Sulfur Content		
Month	Coal	Fuel Oil	Density (lb/gal)	%	Coal%	Oil%
Apr-04	11,762	19,387	7.19	10.31	0.53	0.29
May-04	11,952	19,322	7.19	10.36	0.55	0.26
Jun-04	12,004	19,368	7.14	10.02	0.51	0.23
Jul-04	11,760	19,207	7.17	10.45	0.53	0.29
Aug-04	11,643	19,243	7.12	10.73	0.58	0.26
Sep-04	11,484	19,218	7.18	11.56	0.61	0.22
Oct-04	11,332	19,198	7.17	12.45	0.66	0.24
Nov-04	10,893	19,159	7.18	12.45	0.54	0.21
Dec-04	10,752	19,352	7.19	12.39	0.53	0.34
Jan-05	10,959	19,316	7.18	12.08	0.61	0.21
Feb-05	11,186	19,314	7.18	11.72	0.62	0.20
Mar-05	11,078	19,336	7.20	11.48	0.59	0.27

NOx rolling 12 month totals

UNIT ONE																
12 month ending	Actual NOx Emissions	Heat Input	Operating Hours	Inlet SO2 tons	Effective 12mr Inlet SO2 rate	Representative NOx rate	Restructured NOx Baseline	Excluded Emissions	Non-OFA Predicted NOx Rate	Non-OFA Predicted NOx tons	Difference from Actuals (Disallowed Add-back)	Discounted Actual Emissions	Baseline (adjusted)	Actual OFA Emissions difference from baseline	Discounted OFA Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	13351	7.23E+13	8,676	33076	0.915	0.434	14481	216	0.376816246	13617	266	13402	14265	-1130	-864	N
Sep-04	13143	7.20E+13	8,675	32755	0.909	0.433	14458	194	0.376313197	13555	411	13361	14264	-1315	-903	N
Dec-04	13210	7.25E+13	8,733	33127	0.913	0.434	14569	210	0.376652929	13661	451	13451	14359	-1359	-909	N
Mar-05	12092	6.73E+13	8,114	30879	0.918	0.434	13552	212	0.377065194	12680	588	12468	13341	-1461	-872	N

UNIT TWO																
12 month ending	Actual NOx Emissions	Heat Input	Operating Hours	Inlet SO2 tons	Effective 12mr Inlet SO2 rate	Representative NOx rate	Restructured NOx Baseline	Excluded Emissions	Non-OFA Predicted NOx Rate	Non-OFA Predicted NOx tons	Difference from Actuals (Disallowed Add-back)	Discounted Actual Emissions	Baseline (adjusted)	Actual OFA Emissions difference from baseline	Discounted OFA Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	11374	6.24E+13	7,921	27221	0.873	0.429	13019	627	0.373241217	11636	262	11009	12391	-1645	-1382	N
Sep-04	11193	6.36E+13	7,921	28369	0.893	0.431	13084	692	0.374895575	11915	722	11223	12392	-1891	-1169	N
Dec-04	10952	6.47E+13	7,921	29664	0.917	0.434	13164	772	0.376950638	12196	1244	11424	12392	-2212	-968	N
Mar-05	11383	6.94E+13	8,435	31805	0.917	0.434	14019	823	0.376974951	13073	1690	12250	13196	-2636	-946	N

PLANT							
12 month ending	Actual NOx Emissions	Excluded Emissions	OFA Disallowed Add-back	Adjusted Actual Emissions	Baseline (adjusted)	Discounted Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	24725	843	529	24411	26656	-2246	N
Sep-04	24336	886	1133	24583	26656	-2072	N
Dec-04	24162	982	1695	24874	26751	-1877	N
Mar-05	23475	1035	2278	24718	26537	-1818	N

SO2 rolling 12 month totals

UNIT ONE												
12 month ending	Actual SO2 Emissions	Heat Input	Operating Hours	Inlet SO2 tons	Effective 12mr Inlet SO2 rate	Representative Baseline SO2 rate	Restructured SO2 Baseline	Excluded Emissions	Discounted Actual Emissions	Baseline (adjusted)	Discounted Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	1952	7.23E+13	8,676	33076	0.915	0.068	2284	295	1656	1989	-332	N
Sep-04	1951	7.20E+13	8,675	32755	0.909	0.068	2254	266	1685	1989	-303	N
Dec-04	1993	7.25E+13	8,733	33127	0.913	0.068	2289	288	1705	2002	-296	N
Mar-05	1813	6.73E+13	8,114	30879	0.918	0.069	2150	290	1523	1860	-337	N

UNIT TWO												
12 month ending	Actual SO2 Emissions	Heat Input	Operating Hours	Inlet SO2 tons	Effective 12mr Inlet SO2 rate	Representative Baseline SO2 rate	Restructured SO2 Baseline	Excluded Emissions	Discounted Actual Emissions	Baseline (adjusted)	Discounted Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	1664	6.24E+13	7,921	27221	0.873	0.059	1784	0	1664	1875	-211	N
Sep-04	1761	6.36E+13	7,921	28369	0.893	0.062	1865	0	1761	1875	-113	N
Dec-04	1856	6.47E+13	7,921	29664	0.917	0.065	1968	93	1762	1875	-112	N
Mar-05	2031	6.94E+13	8,435	31805	0.917	0.065	2097	101	1930	1996	-66	N

PLANT											
12 month ending	Actual SO2 Emissions	Heat Input	Operating Hours	Inlet SO2 tons	Effective 12mr Inlet SO2 rate	Restructured SO2 Baseline	Excluded Emissions	Baseline (adjusted)	Discounted Actuals Difference from Baseline	PSD? (>40ton)	
Jun-04	3616	1.35E+14	16,597	60297	0.896	4068.427	295	3863	-543	N	
Sep-04	3712	1.36E+14	16,596	61123	0.902	4119.417	266	3863	-417	N	
Dec-04	3849	1.37E+14	16,654	62790	0.915	4257.179	381	3877	-409	N	
Mar-05	3844	1.37E+14	16,549	62684	0.918	4246.492	390	3856	-403	N	

Stack PM rolling 12 month totals

UNIT ONE										
12 month ending	Actual PM Emissions	Heat Input	Effective Emission Rate	Operating Hours	Restructured Baseline	Discounted Emissions	Adjusted Actual Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>25ton)
Jun-04	138	7.22E+13	0.00382	8,676	127	0	138	188	-50	N
Sep-04	144	7.20E+13	0.00400	8,675	133	0	144	188	-44	N
Dec-04	136	7.25E+13	0.00375	8,733	126	0	136	190	-54	N
Mar-05	119	6.72E+13	0.00354	8,114	111	0	119	176	-57	N

UNIT TWO										
12 month ending	Actual PM Emissions	Heat Input	Effective Emission Rate	Operating Hours	Restructured Baseline	Discounted Emissions	Adjusted Actual Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>25ton)
Jun-04	145	6.23E+13	0.00464	7,921	141	41	104	100	4	N
Sep-04	165	6.35E+13	0.00520	7,921	158	58	107	100	8	N
Dec-04	151	6.47E+13	0.00466	7,921	141	42	109	100	9	N
Mar-05	148	6.93E+13	0.00427	8,435	138	32	116	106	10	N

PLANT					
12 month ending	Actual PM Emissions	Adjusted Emissions	Baseline (adjusted)	Discounted Actuals Difference from Baseline	PSD? (>25ton)
Jun-04	283	242	288	-46	N
Sep-04	309	251	288	-37	N
Dec-04	287	245	289	-44	N
Mar-05	267	235	282	-47	N

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Stack PM10 rolling 12 month totals

UNIT ONE										
12 month ending	Actual PM10 Emissions	Heat Input	Effective Emission Rate	Operating Hours	Restructured Baseline	Discounted Emissions	Adjusted Actual Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>15ton)
Jun-04	127	7.22E+13	0.00351	8,676	117	0	127	173	-46.3	N
Sep-04	133	7.20E+13	0.00368	8,675	123	0	133	173	-40.7	N
Dec-04	125	7.25E+13	0.00345	8,733	116	0	125	174	-49.4	N
Mar-05	110	6.72E+13	0.00326	8,114	102	0	110	162	-52.4	N

UNIT TWO										
12 month ending	Actual PM10 Emissions	Heat Input	Effective Emission Rate	Operating Hours	Restructured Baseline	Discounted Emissions	Adjusted Actual Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>15ton)
Jun-04	133	6.23E+13	0.00427	7,921	130	38	95	92	3.6	N
Sep-04	152	6.35E+13	0.00478	7,921	145	53	99	92	6.9	N
Dec-04	139	6.47E+13	0.00429	7,921	130	38	100	92	8.6	N
Mar-05	136	6.93E+13	0.00393	8,435	127	29	107	98	9.3	N

PLANT					
12 month ending	Actual PM Emissions	Adjusted Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>15ton)
Jun-04	260	222	265	-43	N
Sep-04	284	231	265	-34	N
Dec-04	264	225	266	-41	N
Mar-05	246	217	260	-43	N

Ozone (Volatile Organic Compounds) rolling 12 month totals

UNIT ONE					
12 month ending	Actual VOC Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	6.9480	8,676	6.3226	0.6254	N
Sep-04	6.9333	8,675	6.3221	0.6112	N
Dec-04	7.0865	8,733	6.3643	0.7222	N
Mar-05	6.6132	8,114	5.9129	0.7003	N

UNIT TWO					
12 month ending	Actual VOC Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	5.9930	7,921	5.7405	0.2525	N
Sep-04	6.1171	7,921	5.7406	0.3765	N
Dec-04	6.3348	7,921	5.7406	0.5941	N
Mar-05	6.8391	8,435	6.1132	0.7259	N

PLANT				
12 month ending	Actual VOC Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>40ton)
Jun-04	12.9410	12.0631	0.8779	N
Sep-04	13.0505	12.0627	0.9877	N
Dec-04	13.4213	12.1050	1.3163	N
Mar-05	13.4522	12.0261	1.4262	N

Lead rolling 12 month totals

UNIT ONE					
12 month ending	Actual Pb Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.6ton)
Jun-04	0.0366	8,676	0.0519	-0.0154	N
Sep-04	0.0373	8,675	0.0519	-0.0146	N
Dec-04	0.0342	8,733	0.0523	-0.0180	N
Mar-05	0.0297	8,114	0.0486	-0.0189	N

UNIT TWO					
12 month ending	Actual Pb Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.6ton)
Jun-04	0.0368	7,921	0.0319	0.0050	N
Sep-04	0.0406	7,921	0.0319	0.0087	N
Dec-04	0.0362	7,921	0.0319	0.0044	N
Mar-05	0.0355	8,435	0.0339	0.0015	N

PLANT				
12 month ending	Actual Pb Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.6ton)
Jun-04	0.0734	0.0838	-0.0104	N
Sep-04	0.0780	0.0838	-0.0058	N
Dec-04	0.0705	0.0841	-0.0136	N
Mar-05	0.0651	0.0825	-0.0173	N

Beryllium rolling 12 month totals

UNIT ONE				
12 month ending	Actual Be Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline PSD? (>0.0004ton)
Jun-04	0.0004	8,676	0.0006	-0.0002 N
Sep-04	0.0004	8,675	0.0006	-0.0002 N
Dec-04	0.0004	8,733	0.0006	-0.0002 N
Mar-05	0.0003	8,114	0.0006	-0.0002 N

UNIT TWO				
12 month ending	Actual Be Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline PSD? (>0.0004ton)
Jun-04	0.0005	7,921	0.0003	0.0002 N
Sep-04	0.0005	7,921	0.0003	0.0002 N
Dec-04	0.0004	7,921	0.0003	0.0002 N
Mar-05	0.0004	8,435	0.0003	0.0001 N

PLANT				
12 month ending	Actual Be Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.0004ton)
Jun-04	0.0009	0.0009	0.0000	N
Sep-04	0.0010	0.0009	0.0001	N
Dec-04	0.0008	0.0009	-0.0001	N
Mar-05	0.0008	0.0009	-0.0001	N

Mercury rolling 12 month totals

UNIT ONE					
12 month ending	Actual Hg Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.1ton)
Jun-04	0.0442	8,676	0.0419	0.0023	N
Sep-04	0.0448	8,675	0.0419	0.0029	N
Dec-04	0.0465	8,733	0.0422	0.0043	N
Mar-05	0.0434	8,114	0.0392	0.0042	N

UNIT TWO					
12 month ending	Actual Hg Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.1ton)
Jun-04	0.0380	7,921	0.0384	-0.0004	N
Sep-04	0.0394	7,921	0.0384	0.0011	N
Dec-04	0.0415	7,921	0.0384	0.0032	N
Mar-05	0.0449	8,435	0.0409	0.0040	N

PLANT				
12 month ending	Actual Hg Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>0.1ton)
Jun-04	0.0821	0.0803	0.0019	N
Sep-04	0.0842	0.0803	0.0040	N
Dec-04	0.0881	0.0806	0.0075	N
Mar-05	0.0883	0.0801	0.0083	N

Flouride rolling 12 month totals

UNIT ONE					
12 month ending	Actual HF Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>3ton)
Jun-04	6.0527	8,676	5.5355	0.5172	N
Sep-04	6.0536	8,675	5.5350	0.5185	N
Dec-04	6.2080	8,733	5.5721	0.6360	N
Mar-05	5.7955	8,114	5.1768	0.6187	N

UNIT TWO					
12 month ending	Actual HF Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>3ton)
Jun-04	5.2148	7,921	5.0671	0.1477	N
Sep-04	5.3366	7,921	5.0673	0.2693	N
Dec-04	5.5436	7,921	5.0673	0.4763	N
Mar-05	5.9888	8,435	5.3961	0.5927	N

PLANT				
12 month ending	Actual HF Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>3ton)
Jun-04	11.2675	10.6027	0.6648	N
Sep-04	11.3902	10.6024	0.7879	N
Dec-04	11.7516	10.6394	1.1123	N
Mar-05	11.7844	10.5729	1.2114	N

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Sulfuric Acid rolling 12 month totals

UNIT ONE					
12 month ending	Actual H ₂ SO ₄ Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>7ton)
Jun-04	4.5437	8,676	4.2861	0.2575	N
Sep-04	4.5130	8,675	4.2858	0.2273	N
Dec-04	4.5907	8,733	4.3144	0.2763	N
Mar-05	4.3343	8,114	4.0084	0.3259	N

UNIT TWO					
12 month ending	Actual H ₂ SO ₄ Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>7ton)
Jun-04	3.9574	7,921	3.8839	0.0736	N
Sep-04	4.0194	7,921	3.8840	0.1354	N
Dec-04	4.1396	7,921	3.8840	0.2556	N
Mar-05	4.4888	8,435	4.1360	0.3528	N

PLANT				
12 month ending	Actual H ₂ SO ₄ Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>7ton)
Jun-04	8.5011	8.1700	0.3311	N
Sep-04	8.5324	8.1698	0.3626	N
Dec-04	8.7303	8.1984	0.5318	N
Mar-05	8.8231	8.1444	0.6787	N

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Total Reduced Sulfur / Reduced Sulfur Compounds (TRS/RSC)

UNIT ONE					
12 month ending	Actual TRS/RSC Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>10ton)
Jun-04	36.1377	8,676	33.3693	2.7684	N
Sep-04	36.0197	8,675	33.3664	2.6533	N
Dec-04	36.2690	8,733	33.5895	2.6795	N
Mar-05	33.6286	8,114	31.2068	2.4218	N

UNIT TWO					
12 month ending	Actual TRS/RSC Emissions	Operating Hours	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>10ton)
Jun-04	31.1762	7,921	30.3210	0.8552	N
Sep-04	31.7810	7,921	30.3220	1.4590	N
Dec-04	32.3532	7,921	30.3220	2.0312	N
Mar-05	34.6782	8,435	32.2896	2.3886	N

PLANT				
12 month ending	Actual TRS/RSC Emissions	Baseline (adjusted)	Actuals Difference from Baseline	PSD? (>10ton)
Jun-04	67.3139	63.6903	3.6236	N
Sep-04	67.8007	63.6884	4.1123	N
Dec-04	68.6221	63.9114	4.7107	N
Mar-05	68.3068	63.4964	4.8104	N

BASELINE WEPCO DATA

WEPCO Compliance Baseline Period:

March 1, 2000 to February 28, 2002

Parameter/ Emissions	UNIT ONE				UNIT TWO		
	Total	per hour rate	lb/mmbtu		Total	per hour rate	lb/mmbtu
Heat Input (btu)	1.25E+14	7692321075			1.27E+14	7656091981	
Operating Hours	16249.5				16556		
Coal Throughput (tons)	5,252,644	323.2495769			5,327,858	321.808287	
Fuel Oil Throughput (gal)	562,687	34.62795778			447779	27.04632762	
NOx (tons)	26717.48895	1.644203757	0.427492233		25900.53434	1.564419808	0.408673201
SO2 (tons)	3724.69	0.229218542	0.059596717		3918.35	0.236672711	0.061825984
Stack PM (tons)	352.6245813	0.021700642	0.005642157		208.5277666	0.012595299	0.003290268
Stack PM10 (tons)	324.4146148	0.019964591	0.005190785		191.8455452	0.011587675	0.003027047
Beryllium (tons)	0.00111424	6.85707E-08	1.78284E-08		0.000610932	3.6901E-08	9.63963E-09
Lead (tons)	0.097237787	5.98405E-06	1.55585E-06		0.066625055	4.02422E-06	1.05125E-06
Mercury (tons)	0.078480844	4.82974E-06	1.25573E-06		0.080212976	4.84495E-06	1.26565E-06
Flourides (tons)	10.37	0.000638028	0.000165887		10.59	0.00063973	0.000167117
Sulfuric Acid (tons)	8.03	0.000494023	0.000128446		8.12	0.00049034	0.000128092
TRS/RSC (tons)	62.50	0.003846161	0.001		63.38	0.003828046	0.001
Ozone (VOCs) (tons)	11.84	0.000728749	0.000189474		12.00	0.000724738	0.000189323

INTERMOUNTAIN GENERATING STATION
EMISSION FACTOR FACT SHEET

				PM Emission Rate (lb/mmbtu) and Coal Trace Concentrations (ppm)					
SOURCE	EMISSION FACTOR	UNITS / Formulae	Source / Table	2000	2001	2002	2003	2004	2005
Stack, PM EF, Unit 1		lb/mmbtu	Stack Test	0.0049	0.0073	0.0030	0.0033	0.0040	0.0030
Stack, PM EF, Unit 2		lb/mmbtu	Stack Test	0.0034	0.0037	0.0024	0.0032	0.0052	0.0033
Stack, VOC (coal) Cumulative AP42	0.004292	lbs/ton	AP-42 1.1-13						
Stack, VOC (coal) Cumulative EPRI	8.2	lb/10 ¹² btu	EPRI Trace SubstancesReport						
Stack, VOC (oil) Cumulative AP42	0.2	lb/1000gal	AP-42 1.1-13						
Stack, VOC (oil) Cumulative EPRI	31	lb/10 ¹² btu	EPRI Trace SubstancesReport						
Stack, Be (coal)	1.2*(C/A*PM)^1.1	lb/10 ¹² btu	AP-42 1.1-15	0.38	0.39	0.41	0.41	0.40	0.40
Stack, Pb (coal)	3.4*(C/A*PM)^0.80	lb/10 ¹² btu	AP-42 1.1-15	7.1	6.6	6.2	6	6	6
Stack, Hg (coal) Control Efficiency	76.9	%	Source Testing	0.061	0.068	0.065	0.06	0.06	0.06
Stack, F (coal) Control Efficiency	97	%	EPRI Trace SubstancesReport	63	68	68	65	66	66
Stack, Be (oil)	0.2	lb/10 ¹² btu	EPRI Trace SubstancesReport						
Stack, Be (oil) Control Efficiency	30	%	EPRI Trace SubstancesReport						
Stack, Pb (oil)	7	lb/10 ¹² btu	EPRI Trace SubstancesReport						
Stack, Pb (oil) Control Efficiency	30	%	EPRI Trace SubstancesReport						
Stack, Hg (oil)	0.46	lb/10 ¹² btu	EPRI Trace SubstancesReport						
Stack, Hg (Control Efficiency)	76.9	%	Source Testing						
Stack, H2SO4 (coal)	6.45986	lb/ton	Source Testing						
Stack, H2SO4 Control Efficiency	92.02	%	Source Testing						
Stack, H2SO4 (oil)	0.00245	lb/gal	So Co Paper						
Stack, TRS/RSC	0.001	lb/mmbtu	Eng. Calc.						
Stack SS&M (PM10)	0.42	lbs/ton	AP42 T1.1-6						
Stack SS&M (PM)	0.6	lbs/ton	AP42 T1.1-6						
Stack SS&M (PM10)	71	%	AP42 T1.1-6						
NOx relationship to Fuel Quality (Baseline)	0.1091x + 0.3341	lb/mmbtu	Plant NOx Basis Worksheet						
NOx relationship to Fuel Quality (No OFA)	0.0848x + 0.2992	lb/mmbtu	Plant NOx Basis Worksheet						
U1 SO2 relationship to Fuel Quality	0.0817x ²	lb/mmbtu	U1 SO2 Basis Worksheet						
U2 SO2 relationship to Fuel Quality	0.0728x ²	lb/mmbtu	U2 SO2 Basis Worksheet						

INTERMOUNTAIN GENERATING STATION
Analysis Protocol

- Refer to the following groups for description of general column headings in each WEPCO worksheet.
This protocol overview is provided to ensure consistency and validation in the following areas:
- 1. - Input Data
 - 2. - Production & Emission Calculations
 - 3. - WEPCO Analysis: Actuals to Actuals comparison, and adjusting for increases not attributable to the modifications.

Data Used	Data Sources
Fuel Throughput - Coal	Calibrated feeders located at each mill. Adjusted annually based upon coal stockpile inventory analysis.
Fuel Throughput - Fuel Oil	Flowmeters for each unit.
Fuel Quality - Coal HHV	ASTM Sampling and Laboratory Analysis - As fired
Fuel Quality - Coal ASH	ASTM Sampling and Laboratory Analysis - As fired
Fuel Quality - Coal Sulfur	ASTM Sampling and Laboratory Analysis - As fired
Fuel Quality - Coal Trace Elements	ASTM Sampling and Laboratory Analysis - As fired
Fuel Quality - Oil HHV	ASTM Sampling and Laboratory Analysis - As fired
Fuel Quality - Oil Density	ASTM Sampling and Laboratory Analysis - As fired
Fuel Quality - Oil Sulfur	ASTM Sampling and Laboratory Analysis - As fired
Startup, Shutdown, & Malfunction Emissions	Obtained from excess emission reports made to UDAQ, utilizing AP-42 factors for uncontrolled sources.
Operating Hours	Boiler operating data obtained from 40 CFR Part 75 CEMS EDR
Inlet Sulfur Rate	Actual CEM measurement taken at scrubber inlet pursuant to 40 CFR Part 60 requirements
Outlet Sulfur Emissions	Actual CEM measurement taken at stack pursuant to both 40 CFR Part 60 and Part 75 requirements
NOx Rate	Actual CEM measurement taken at stack pursuant to both 40 CFR Part 60 and Part 75 requirements
PM Emission Rate	From annual 40 CFR Part 60 App.A. Method 5 stack testing

Production / Emission Calculations	Basis
SS&M PM and PM10 Excess Emissions	Utilizing AP-42 & SS&M emissions (in pounds), converted to tons
Heat Input	Multiplies fuel quality (HHV) by throughput, and conversion factors
Inlet Sulfur Tonnage	Multiplies inlet sulfur rate by heat input, and conversion factors
NOx emissions in tons	Multiplies NOx emission rate by heat input, and conversion factors
PM emissions in tons	Multiplies PM emission rate by heat input, and conversion factors
PM10 emissions in tons	Multiplies PM10 emission rate by heat input, and conversion factors
Be emission factor	Calculated with AP-42 (coal) or EPRI's Trace Substance Report (oil), using trace concentration and ash content.
Be emissions	Utilizes Be emission factors and heat input, and conversion factors
Pb emission factor	Calculated with AP-42 (coal) or EPRI's Trace Substance Report (oil), using trace concentration and ash content.
Pb emissions	Utilizes Pb emission factors and heat input, and conversion factors
Hg emissions	Utilizes control efficiencies determined by stack testing
Flourides/HF emissions	Calculated utilizing EPRI's Trace Substance Report and trace concentration, and conversion factors
H2SO4 emissions	Utilizes control efficiencies determined by stack testing, and conversion rates based upon So. Co.'s paper
TRS/RSC sulfur compound emissions	Uses a factor derived on the basis of AP-42 Table 1.1-3, Footnote (b).
VOC's	Using a summation of individual VOC specific emission factors from both AP-42 and EPRI's Trace Substance Report to resolve a single cumulative EF, multiplying either throughput or heat input, and conversion factors.

WEPCO Analysis	Description
Actual emissions	Summation of 12 rolling months of emissions calculated on the PODUCTION DATA worksheet.
Heat Input	Summation of 12 rolling months of heat input calculated on the PRODUCTION DATA worksheet.
Operating hours	Summation of 12 rolling months of hours calculated on the PRODUCTION DATA worksheet.
Inlet SO2 tonnage	Summation of 12 rolling SO2 tons to the scrubber inlet calculated on the PRODUCTION DATA worksheet.
Effective 12 month SO2 Inlet rate	Derived from dividing 12 month inlet tonnage by 12 month heat rate.
Representative rate	Represents rate predicted to have occurred during baseline if this period's fuel was utilized. Based upon historical operating and emissions data.
Restructured Baseline	Represents predicted emissions that would have occurred during baseline period at the representative rate, using the baseline period heat input.
Excluded emissions	Difference between the actual baseline and the restructured baseline, indicating non-mod emission increases that could be accommodated during baseline period.
Non-OFA Predicted Rate	Expected emssion rate without the benefit of OFA, based upon historical operating and emissions data.
Non-OFA Predicted emissions	Expected emssions without the benefit of OFA, multiplying predicted rate by actual heat input.
Non-OFA Emission difference from actual	This is the calculated benefit from OFA which must be discounted to show WEPCO compliance for the Dense Pack Project.
Discounted actual emissions	Emissions to which the WEPCO test applies, which discounts any OFA benefit, and excludes increases not attributable to the modification.
Baseline (adjusted)	The basis to which the WEPCO test compares, utilizing the baseline emission rate, adjusted to hours of operation.
Discounted Difference	The difference between WEPCO period emissions and Baseline period emissions.
PSD?	An IF statement argument that compares the difference against the PSD significance level.